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EXAMINER	
LOO, JUVENA W	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/821,401	CLARK, ALAN D.	
	Examiner	Art Unit	
	Juvena W. Loo	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16, 22-23, 30-31, and 33-35* is/are rejected.

7)☒ Claim(s) *17-21,24-29,32 and 36-39* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 April 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *May 08, 2006 and July 12, 2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the claimed invention must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 5 is objected to because of the following informalities: In particular, claim 5 contains the term "packet loss" twice. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 31 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claim 31, it is clear as to determine the number of packets received out of sequence "as a" percentage of total number of packets received.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 4, 10, 14, 31, and 35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 4, 10, 14, and 35, it is not clear why the location of the network problem still needs to be estimated when it is determined to be the source associated with the call group with a high percentage of network problems. In addition, it is not clear how the location of said network problem "is equal to" the source associated with said call group. Therefore, the claim is vague and indefinite.

Regarding claim 31, it is not clear how to determine the number of packets received out of sequence "as a" percentage of total number of packets received. Therefore, the claim is vague and indefinite.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-4, and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Kan et al. (US 2004/0090923 A1).

Kan et al. discloses a network monitoring system for monitoring a network along which network traffic flows in a form of packets comprising:

Regarding claim 1, *a method for identifying problems in a network environment* (Kan: see Abstract)*, comprising the steps of:*

a. during more than one interval determining the level of one or more-impairments (Kan: see "the IDC provides…the received packets" in page 4, section 0023 and "Looking now to…response to a threshold-exceeding IDC" in page 4, section 0024);

b. grouping said levels of one or more impairments into one or more event groups (Kan: see "the IDC provides…the received packets" in page 4, section 0023 and "Looking now to…response to a threshold-exceeding IDC" in page 4, section 0024);

c. comparing said one or more event groups with one or more problem signatures (Kan: see Figure 3, steps 48 and 50; see also "In step 48…step 50 to step 52" in page 6, sections 0036 and 0037); *and*

d. categorizing at least one of said one or more event groups as being associated with a network problem having one of said one or more problem signatures

(Kan: see "FIG. 3 illustrates a flow…in response to such congestion" in page 6, section 0032).

Regarding claim 2, *further comprising the steps of*:

a. determining the source of more than one call (Kan: see Figure 3, step 42 and "Turning to method 40…either of these two rules" in page 6, section 0033);

b. grouping said more than one calls into one or more call groups based on the source of said more than one calls (Kan: see Figure 3, steps 42 and 44; see also "Thus, in step 42, for the captured packet…of these two rules" in page 6, section 0033);

c. for each call group determining the number of calls having said network problem (Kan: see Figure 3, steps 46, 48, and 50; see also "FIG. 3 illustrates…in traffic parameters" in pages 6 – 7, sections 0032 - 0038); *and*

d. estimating the location of said network problem based on the number of calls having said network problem (Kan: see Figure 3, steps 50 and 52; see also "In step 50…traffic parameters" in pages 6 – 7, section 0037 - 0038).

Regarding claim 3, *wherein determining the source of more than one call includes determining the source internet protocol address of said more than one call* (Kan: see Figure 3, step 42 and "Turning to method 40…either of these two rules" in page 6, section 0033; also see "the received packet comprises an IP packet" in page 7, claim 3).

Regarding claim 4, *wherein estimating the location of said network problem includes:*

a. determining the percentage of calls within said call group having said network problem (Kan: see "IDC is defines as the variance…burstiness in the received packets" in page 4, section 0023; see also "FIG. 3 illustrates a flow chart…in network 20" in page 6, section 0032); *and*

b. estimating that the location of said network problem, is equal to the source associated with said call group if the percentage of calls is high (Kan: see "Looking now…in response to a threshold-exceeding IDC" in page 4, section 0024; see also "FIG. 3 illustrates a flow chart…in network 20" in page 6, section 0032).

Regarding claim 6, *wherein said network problem is selected from the group consisting of local area network congestion, access link congestion, route change, access link failure, route flapping, load sharing, and route diversity* (Kan: see "Looking now…in response to a threshold-exceeding IDC" in page 4, section 0024).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 5, 7-16, 22, 23, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kan et al. (US 2004/0090923 A1) in view of Botton-Dascal et al. (US 6,990,616 B1).

Kan et al. discloses all the limitations as in paragraph 7. However, Kan et al. does not discloses the following features: regarding claim 5, *wherein said one or more impairments is selected from the group consisting of delay, packet loss, jitter, distortion, absolute packet delay variation, relative packet to packet delay variation, short term delay variation, short term average delay, timing drift, packet loss, and proportion of out-of-sequence packets;* regarding claim 15, wherein determining the level of one or more impairments includes: a. applying a local timestamp to a packet corresponding to the actual arrival time of said packet; b. extracting a sending timestamp from said packet; c. extracting a sending sequence number from said packet; d. estimating an expected arrival time for said packet; and e. subtracting the actual arrival time of said packet from the expected arrival time of said packet; regarding claim 16, wherein determining the level of one or more impairments further includes computing an average of said subtracted value over a short period of time; regarding claim 22, wherein determining the level of one or more impairments includes: a. determining the delay of a first packet; b. determining the delay of a subsequent packet; and c. subtracting the delay of said subsequent packet from the delay of said first packet; regarding claim 23, wherein determining the level of one or more impairments further includes computing an

average of said subtracted value over a short period of time; regarding claim 30, wherein determining the level of one or more impairments includes calculating the number of packets lost as a percentage of the sum of packets lost plus packets received.

Botton-Dascal et al. discloses a method for testing of a communication network comprising the following features:

Regarding claim 5, wherein said one or more impairments is selected from the group consisting of delay, packet loss, jitter, distortion, absolute packet delay variation, relative packet to packet delay variation, short term delay variation, short term average delay, timing drift, packet loss, and proportion of out-of-sequence packets (Botton-Dascal: see “Preferred embodiments... packets have arrived our of order" in column 2, lines 45 - 56).

Regarding claim 7, wherein said network problem is selected from the group consisting of local area network congestion, access link congestion, route change, access link failure, route flapping, load sharing, and route diversity (Kan: see “Looking now…in response to a threshold-exceeding IDC” in page 4, section 0024).

Regarding claim 8, *further comprising the steps of:*

a. determining the source of more than one call (Kan: see Figure 3, step 42 and "Turning to method 40…either of these two rules" in page 6, section 0033)*;*

b. grouping said more than one calls into one or more call groups based on the source of said more than one calls (Kan: see Figure 3, steps 42 and 44; see also "Thus, in step 42, for the captured packet…of these two rules" in page 6, section 0033)*;*

c. for each call group determining the number of calls having said network problem (Kan: see Figure 3, steps 46, 48, and 50; see also "FIG. 3 illustrates…in traffic parameters" in pages 6 – 7, sections 0032 - 0038)*; and*

d. estimating the location of said network problem based on the number of calls having said network problem (Kan: see Figure 3, steps 50 and 52; see also "In step 50…traffic parameters" in pages 6 – 7, section 0037 - 0038)*.*

Regarding claim 9, *wherein determining the source of more than one call includes determining the source internet protocol address of said more than one call* (Kan: see Figure 3, step 42 and "Turning to method 40…either of these two rules" in page 6, section 0033; also see "the received packet comprises an IP packet" in page 7, claim 3).

Regarding claim 10, *wherein estimating the location of said network problem includes:*

a. determining the percentage of calls within said call group having said network problem (Kan: see "IDC is defines as the variance…burstiness in the received packets"

in page 4, section 0023; see also "FIG. 3 illustrates a flow chart…in network 20" in page 6, section 0032); *and*

b. estimating that the location of said network problem is equal to the source associated with said call group if the percentage of calls is high (Kan: see "Looking now…in response to a threshold-exceeding IDC" in page 4, section 0024; see also "FIG. 3 illustrates a flow chart…in network 20" in page 6, section 0032).

Regarding claim 11, *further comprising the step of producing an array of said levels of one or more impairments from measurements taken at one location within the network* (Kan: see "console 30 is connected…shares a common flow database" in page 3, section 0020; see also "Additionally, in one embodiment, flow store 32..different specified rule sets" in pages 3 – 4, section 0020).

Regarding claim 12, *further comprising the steps of:*

a. determining the source of more than one call (Kan: see Figure 3, step 42 and "Turning to method 40…either of these two rules" in page 6, section 0033)*;*

b. grouping said more than one calls into one or more call groups based on the source of said more than one calls (Kan: see Figure 3, steps 42 and 44; see also "Thus, in step 42, for the captured packet…of these two rules" in page 6, section 0033)*;*

c. for each call group determining the number of calls having said network problem (Kan: see Figure 3, steps 46, 48, and 50; see also "FIG. 3 illustrates…in traffic parameters" in pages 6 – 7, sections 0032 - 0038)*; and*

d. estimating the location of said network problem based on the number of calls having said network problem (Kan: see Figure 3, steps 50 and 52; see also "In step 50…traffic parameters" in pages 6 – 7, section 0037 - 0038).

Regarding claim 13, *wherein determining the source of more than one call includes determining the source internet protocol address of said more than one call* (Kan: see Figure 3, step 42 and "Turning to method 40…either of these two rules" in page 6, section 0033; also see "the received packet comprises an IP packet" in page 7, claim 3).

Regarding claim 14, *wherein estimating the location of said network problem includes:*

a. determining the percentage of calls within said call group having said network problem (Kan: see "IDC is defines as the variance…burstiness in the received packets" in page 4, section 0023; see also "FIG. 3 illustrates a flow chart…in network 20" in page 6, section 0032); *and*

b. estimating that the location of said network problem is equal to the source associated with said call group if the percentage of calls is high (Kan: see "Looking now…in response to a threshold-exceeding IDC" in page 4, section 0024; see also "FIG. 3 illustrates a flow chart…in network 20" in page 6, section 0032).

Regarding claim 15, *wherein determining the level of one or more impairments includes*:

a. applying a local timestamp to a packet corresponding to the actual arrival time of said packet (Botton-Dascal: see "To begin the measurement…report these values to the testing center" in column 11, line 62 through column 12, line 9);

b. extracting a sending timestamp from said packet (Botton-Dascal: see "To begin the measurement…report these values to the testing center" in column 11, line 62 through column 12, line 9);

c. extracting a sending sequence number from said packet (Botton-Dascal: see Figure 3 and "FIG. 3 is a flow…over all of the received packets" in column 11, lines 14 – 24);

d. estimating an expected arrival time for said packet (Botton-Dascal: see "To begin the measurement…report these values to the testing center" in column 11, line 62 through column 12, line 9); and

e. subtracting the actual arrival time of said packet from the expected arrival time of said packet (Botton-Dascal: see "To begin the measurement…report these values to the testing center" in column 11, line 62 through column 12, line 9).

Regarding claim 16, *wherein determining the level of one or more impairments further includes computing an average of said subtracted value over a short period of time* (Botton-Dascal: see "Typically, this process is repeated a number of times" in column 12, lines 11 -12).

Regarding claim 22, *wherein determining the level of one or more impairments includes:*

a. determining the delay of a first packet (Botton-Dascal: see "To begin the measurement...report these values to the testing center" in column 11, line 62 through column 12, line 9);

b. determining the delay of a subsequent packet (Botton-Dascal: see "To begin the measurement...report these values to the testing center" in column 11, line 62 through column 12, line 9); and

c. subtracting the delay of said subsequent packet from the delay of said first packet (Botton-Dascal: see "To begin the measurement...report these values to the testing center" in column 11, line 62 through column 12, line 9).

Regarding claim 23, *wherein determining the level of one or more impairments further includes computing an average of said subtracted value over a short period of time* (Botton-Dascal: see "Typically, this process is repeated a number of times" in column 12, lines 11 -12).

Regarding claim 30, *wherein determining the level of one or more impairments includes calculating the number of packets lost as a percentage of the sum of packets lost plus packets received* (Botton-Dascal: see Figure 2 and "FIG. 2 is a flow chart...will be T/p" in column 10, lines 26 – 53).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Kan et al. by using the features, as taught by Botton-Dascal et al., in order to provide improved methods and apparatus for locating faults within communication networks (Botton-Dascal: see column 2, lines 16 - 19).

Allowable Subject Matter

11. Claims 17-21, 24-29, 32, and 36-39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is an examiner's statement of reasons for allowance:

Regarding claims 17, 24, and 32, the prior arts include the determination of short term delay variation and delay within a network. However, they fail to disclose that one or more problem signatures include:

a. a high value of short term delay variation without an increase in delay;

b. an increase in delay accompanied by an increase in short term delay variation followed by a decrease in delay; or

c. an increase or decrease in delay accompanied by a substantially constant level of short term delay variation.

Regarding claims 18, 25, and 36, the prior arts include the comparing a change in delay during an interval with a threshold as well as determining the level of short term delay variation during the interval. However, they fail to disclose the determining whether a preceding interval contains a delay impairment.

Regarding claims 19-21, they are dependent on claim 18 which is being objected to.

Regarding claims 26-28, they are dependent on claim 25 which is being objected to.

Regarding claim 29, the prior arts include the identifying a fist packet having a minimum delay and subtracting the delay of a second packet from the delay of the first packet. However, they fail to disclose dividing the subtracted value by the time interval to estimate the rate of change of clock speed as well as incorporating the estimated rate of change of clock speed into an average rate of change if said estimated rate of change of clock speed exceeds a threshold.

Regarding claims 37-39, they are dependent on claim 36 which is being objected to.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUVENA W. LOO whose telephone number is (571)270-1974. The examiner can normally be reached on Monday - Friday: 7:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Juvena Loo/

Examiner, Art Unit 2616

February 23, 2008

/Kwang B. Yao/
Supervisory Patent Examiner, Art Unit 2616